WHAT IS CLAIMED IS:

1. A telecommunications network having a first entity which communicates with a second entity by sending a packet having a compressed header, characterized in that the first entity also sends to the second entity a header compression key associated with the packet, the header compression key having a first field which is utilized for distinguishing between different flows of compressed packets.

2. The apparatus of claim 1, wherein a first subset of values for the first field of the header compression key is employed to distinguish between different header compression identifiers and wherein a second subset of values for the first field is employed to distinguish between the different flows of compressed packets.

3. The apparatus of claim 2, wherein the values of the second subset succeed the values of the first subset.

4. The apparatus of claim 2, wherein the header compression identifiers denote a header compression method and a packet type.

5. The apparatus of claim 2, wherein the header compression key is included in a header of a protocol data unit of a link layer protocol.

6. The apparatus of claim 5, wherein the header compression key is a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the first field is a PID type field.

7. The apparatus of claim 2, wherein the second set of values comprise context identifiers for a compression/decompression algorithm.

8. The apparatus of claim 2, wherein the second set of values comprise context identifiers for a compression/decompression algorithm which does not require packet type identification at a link layer level.

1   9.   The apparatus of claim 8, wherein the compression/decompression algorithm

2   is the Robust Header Compression (ROHC) algorithm.

1   10.   The apparatus of claim 2, wherein the header compression key is included

2   in a protocol data unit of a link layer protocol.

1   11.   The apparatus of claim 1, wherein the header compression key has a second

2   field which is utilized to indicate whether the first field of the header compression key

3   is utilized exclusively for distinguishing between the different flows of compressed

4   packets.

1   12.   The apparatus of claim 11, wherein a first value in the second field of the

2   header compression key indicates that the first field of the header compression key is

3   utilized exclusively for distinguishing between the different flows of compressed

4   packets, and wherein a second value in the second field of the header compression key

5   indicates that data in the first field of the header compression key, depending on its

6   value, can be either a header compression identifier or a packet flow identifier.

1   13.   The apparatus of claim 12, wherein the data in the first field of the header

2   compression key, when included in a first subset of values, distinguishes between

3   different header compression identifiers, and wherein the data in the first field of the

4   header compression key, when included in a second subset of values, distinguishes

5   between the different flows of compressed packets.

1   14.   The apparatus of claim 13, wherein the values of the second subset succeed

2   the values of the first subset.

1   15.   The apparatus of claim 13, wherein the header compression identifiers

2   denote a header compression method and a packet type.

1   16.   The apparatus of claim 13, wherein the header compression key is included

2   in a header of a protocol data unit of a link layer protocol.

17. The apparatus of claim 16, wherein the header compression key is included in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the first field is a PID type field.

18. The apparatus of claim 13, wherein the second set of values comprise context identifiers for a compression/decompression algorithm.

19. The apparatus of claim 18, wherein the second set of values comprise context identifiers for a compression/decompression algorithm which does not require packet type identification at a link layer level.

20. The apparatus of claim 19, wherein the compression/decompression algorithm is the Robust Header Compression (ROHC) algorithm.

21. The apparatus of claim 11, wherein the header compression key is included in a header of a protocol data unit of a link layer protocol.

22. The apparatus of claim 21, wherein the header compression key is included in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the second field is a PDU type field.

23. The apparatus of claim 11, wherein the header compression key is included in a protocol data unit of a link layer protocol.

24. The apparatus of claim 1, wherein the packet is an Internet Protocol (IP) packet.

25. The apparatus of claim 1, wherein the telecommunications network is a cellular telecommunications network, and wherein the first entity communicates at least partially over an air interface with the second entity.

26. The apparatus of claim 1, wherein the telecommunications network is a cellular telecommunications network, and wherein at least one of the first entity and the second entity is situated at one of a radio network controller node (RNC) and a user equipment unit (UE).

1   27. A node of a cellular telecommunications network which has a first entity
2   which communicates with a second entity by sending a packet having a compressed
3   header, characterized in that the first entity also sends to the second entity a header
4   compression key associated with the packet, the header compression key having a first
5   field which is utilized for distinguishing between different flows of compressed
6   packets.

1   28. The apparatus of claim 27, wherein a first subset of values for the first field
2   of the header compression key is employed to distinguish between different header
3   compression identifiers and wherein a second subset of values for the first field is
4   employed to distinguish between the different flows of compressed packets.

1   29. The apparatus of claim 28, wherein the values of the second subset succeed
2   the values of the first subset.

1   30. The apparatus of claim 28, wherein the header compression identifiers
2   denote a header compression method and a packet type.

1   31. The apparatus of claim 28, wherein the header compression key is included
2   in a header of a protocol data unit of a link layer protocol.

1   32. The apparatus of claim 31, wherein the header compression key is a header
2   of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the
3   first field is a PID type field.

1   33. The apparatus of claim 28, wherein the second set of values comprise
2   context identifiers for a compression/decompression algorithm.

1   34. The apparatus of claim 28, wherein the second set of values comprise
2   context identifiers for a compression/decompression algorithm which does not require
3   packet type identification at a link layer level.

1   35. The apparatus of claim 34, wherein the compression/decompression
2   algorithm is the Robust Header Compression (ROHC) algorithm.

1   36.   The apparatus of claim 28, wherein the header compression key is included
2   in a protocol data unit of a link layer protocol.

1   37.   The apparatus of claim 36, wherein the header compression key has a
2   second field which is utilized to indicate whether the first field of the header
3   compression key is utilized exclusively for distinguishing between the different flows
4   of compressed packets.

1   38.   The apparatus of claim 37, wherein a first value in the second field of the
2   header compression key indicates that the first field of the header compression key is
3   utilized exclusively for distinguishing between the different flows of compressed
4   packets, and wherein a second value in the second field of the header compression key
5   indicates that data in the first field of the header compression key, depending on its
6   value, can be either a header compression identifier or a packet flow identifier.

1   39.   The apparatus of claim 38, wherein the data in the first field of the header
2   compression key, when included in a first subset of values, distinguishes between
3   different header compression identifiers, and wherein the data in the first field of the
4   header compression key, when included in a second subset of values, distinguishes
5   between the different flows of compressed packets.

1   40.   The apparatus of claim 39, wherein the values of the second subset succeed
2   the values of the first subset.

1   41.   The apparatus of claim 39, wherein the header compression identifiers
2   denote a header compression method and a packet type.

1   42.   The apparatus of claim 39, wherein the header compression key is included
2   in a header of a protocol data unit of a link layer protocol.

1   43.   The apparatus of claim 42, wherein the header compression key is included
2   in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and
3   wherein the first field is a PID type field.

44. The apparatus of claim 39, wherein the second set of values comprise context identifiers for a compression/decompression algorithm.

45. The apparatus of claim 44, wherein the second set of values comprise context identifiers for a compression/decompression algorithm which does not require packet type identification at a link layer level.

46. The apparatus of claim 45, wherein the compression/decompression algorithm is the Robust Header Compression (ROHC) algorithm.

47. The apparatus of claim 37, wherein the header compression key is included in a header of a protocol data unit of a link layer protocol.

48. The apparatus of claim 47, wherein the header compression key is included in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the second field is a PDU type field.

49. The apparatus of claim 37, wherein the header compression key is included in a protocol data unit of a link layer protocol.

50. The apparatus of claim 49, wherein the packet is an Internet Protocol (IP) packet.

51. The apparatus of claim 49, wherein the telecommunications network is a cellular telecommunications network, and wherein the first entity communicates at least partially over an air interface with the second entity.

52. The apparatus of claim 49, wherein the telecommunications network is a cellular telecommunications network, and wherein at least one of the first entity and the second entity is situated at one of a radio network controller node (RNC) and a user equipment unit (UE).

53. A user equipment unit (UE) having a first entity which communicates with a second entity by sending a packet having a compressed header, the second entity being situated at a node of a cellular telecommunications network, characterized in that

4 the first entity also sends to the second entity a header compression key associated with

5 the packet, the header compression key having a first field which is utilized for

6 distinguishing between different flows of compressed packets.

54. The apparatus of claim 53, wherein a first subset of values for the first field

2 of the header compression key is employed to distinguish between different header

3 compression identifiers and wherein a second subset of values for the first field is

4 employed to distinguish between the different flows of compressed packets.

1 55. The apparatus of claim 54, wherein the values of the second subset succeed

2 the values of the first subset.

1 56. The apparatus of claim 54, wherein the header compression identifiers

2 denote a header compression method and a packet type.

1 57. The apparatus of claim 54, wherein the header compression key is included

2 in a header of a protocol data unit of a link layer protocol.

1 58. The apparatus of claim 57, wherein the header compression key is a header

2 of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the

3 first field is a PID type field.

1 59. The apparatus of claim 54, wherein the second set of values comprise

2 context identifiers for a compression/decompression algorithm.

1 60. The apparatus of claim 54, wherein the second set of values comprise

2 context identifiers for a compression/decompression algorithm which does not require

3 packet type identification at a link layer level.

1 61. The apparatus of claim 60, wherein the compression/decompression

2 algorithm is the Robust Header Compression (ROHC) algorithm.

1 62. The apparatus of claim 54, wherein the header compression key is included

2 in a protocol data unit of a link layer protocol.

63. The apparatus of claim 53, wherein the header compression key has a second field which is utilized to indicate whether the first field of the header compression key is utilized exclusively for distinguishing between the different flows of compressed packets.

64. The apparatus of claim 63, wherein a first value in the second field of the header compression key indicates that the first field of the header compression key is utilized exclusively for distinguishing between the different flows of compressed packets, and wherein a second value in the second field of the header compression key indicates that data in the first field of the header compression key, depending on its value, can be either a header compression identifier or a packet flow identifier.

65. The apparatus of claim 64, wherein the data in the first field of the header compression key, when included in a first subset of values, distinguishes between different header compression identifiers, and wherein the data in the first field of the header compression key, when included in a second subset of values, distinguishes between the different flows of compressed packets.

66. The apparatus of claim 65, wherein the values of the second subset succeed the values of the first subset.

67. The apparatus of claim 65, wherein the header compression identifiers denote a header compression method and a packet type.

68. The apparatus of claim 65, wherein the header compression key is included in a header of a protocol data unit of a link layer protocol.

69. The apparatus of claim 68, wherein the header compression key is included in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the first field is a PID type field.

70. The apparatus of claim 65, wherein the second set of values comprise context identifiers for a compression/decompression algorithm.

71. The apparatus of claim 70, wherein the second set of values comprise context identifiers for a compression/decompression algorithm which does not require packet type identification at a link layer level.

72. The apparatus of claim 71, wherein the compression/decompression algorithm is the Robust Header Compression (ROHC) algorithm.

73. The apparatus of claim 63, wherein the header compression key is included in a header of a protocol data unit of a link layer protocol.

74. The apparatus of claim 73, wherein the header compression key is included in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the second field is a PDU type field.

75. The apparatus of claim 63, wherein the header compression key is included in a protocol data unit of a link layer protocol.

76. The apparatus of claim 53, wherein the packet is an Internet Protocol (IP) packet.

77. The apparatus of claim 53, wherein the telecommunications network is a cellular telecommunications network, and wherein the first entity communicates at least partially over an air interface with the second entity.

78. The apparatus of claim 53, wherein the telecommunications network is a cellular telecommunications network, and wherein at least one of the first entity and the second entity is situated at one of a radio network controller node (RNC) and a user equipment unit (UE).

79. A method of operating a telecommunications network having a first entity which communicates with a second entity by sending a packet having a compressed header, the method characterized by sending from the first entity sends to the second entity a header compression key associated with the packet, the header compression key having a first field which is utilized for distinguishing between different flows of compressed packets.

Sub 1[6]

80. The method of claim 79, wherein a first subset of values for the first field of the header compression key is employed to distinguish between different header compression identifiers and wherein a second subset of values for the first field is employed to distinguish between the different flows of compressed packets.

81. The method of claim 80, wherein the values of the second subset succeed the values of the first subset.

82. The method of claim 80, wherein the header compression identifiers denote a header compression method and a packet type.

83. The method of claim 80, wherein the header compression key is included in a header of a protocol data unit of a link layer protocol.

84. The method of claim 83, wherein the header compression key is a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and wherein the first field is a PID type field.

85. The method of claim 80, wherein the second set of values comprise context identifiers for a compression/decompression algorithm.

86. The method of claim 80, wherein the second set of values comprise context identifiers for a compression/decompression algorithm which does not require packet type identification at a link layer level.

87. The method of claim 86, wherein the compression/decompression algorithm is the Robust Header Compression (ROHC) algorithm.

88. The method of claim 80, wherein the header compression key is included in a protocol data unit of a link layer protocol.

89. The method of claim 79, wherein the header compression key has a second field which is utilized to indicate whether the first field of the header compression key

3   is utilized exclusively for distinguishing between the different flows of compressed

4   packets.

1   90.   The method of claim 89, wherein a first value in the second field of the

2   header compression key indicates that the first field of the header compression key is

3   utilized exclusively for distinguishing between the different flows of compressed

4   packets, and wherein a second value in the second field of the header compression key

5   indicates that data in the first field of the header compression key, depending on its

6   value, can be either a header compression identifier or a packet flow identifier.

1   91.   The method of claim 90, wherein the data in the first field of the header

2   compression key, when included in a first subset of values, distinguishes between

3   different header compression identifiers, and wherein the data in the first field of the

4   header compression key, when included in a second subset of values, distinguishes

5   between the different flows of compressed packets.

1   92.   The method of claim 91, wherein the values of the second subset succeed

2   the values of the first subset.

1   93.   The method of claim 91, wherein the header compression identifiers denote

2   a header compression method and a packet type.

1   94.   The method of claim 91, wherein the header compression key is included in

2   a header of a protocol data unit of a link layer protocol.

1   95.   The method of claim 94, wherein the header compression key is included in

2   a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and

3   wherein the first field is a PID type field.

1   96.   The method of claim 94, wherein the second set of values comprise context

2   identifiers for a compression/decompression algorithm.

1   97.   The method of claim 96, wherein the second set of values comprise context

2   identifiers for a compression/decompression algorithm which does not require packet

3   type identification at a link layer level.

1 98. The method of claim 97, wherein the compression/decompression
2 algorithm is the Robust Header Compression (ROHC) algorithm.

1 99. The method of claim 89, wherein the header compression key is included in
2 a header of a protocol data unit of a link layer protocol.

1 100. The method of claim 99, wherein the header compression key is included
2 in a header of a protocol data unit for Packet Data Convergence Protocol (PDCP), and
3 wherein the second field is a PDU type field.

1 101. The method of claim 89, wherein the header compression key is included
2 in a protocol data unit of a link layer protocol.

1 102. The method of claim 79, wherein the packet is an Internet Protocol (IP)
2 packet.

1 103. The method of claim 79, wherein the telecommunications network is a
2 cellular telecommunications network, and wherein the first entity communicates at least
3 partially over an air interface with the second entity.

1 104. The method of claim 79, wherein the telecommunications network is a
2 cellular telecommunications network, and wherein at least one of the first entity and the
3 second entity is situated at one of a radio network controller node (RNC) and a user
4 equipment unit (UE).